IFAS: India's No. 1 Institute CSIR UGC NET, SET & All MSc. Entrance Exams

> The function of education is to teach one to think intensively and to think critically Intelligence plus character—that is the goal of true education

CSIR NET - GENERAL APTITUDE

QUANTITATIVE APTITUDE

L-4 Observational skills-II

IfAS

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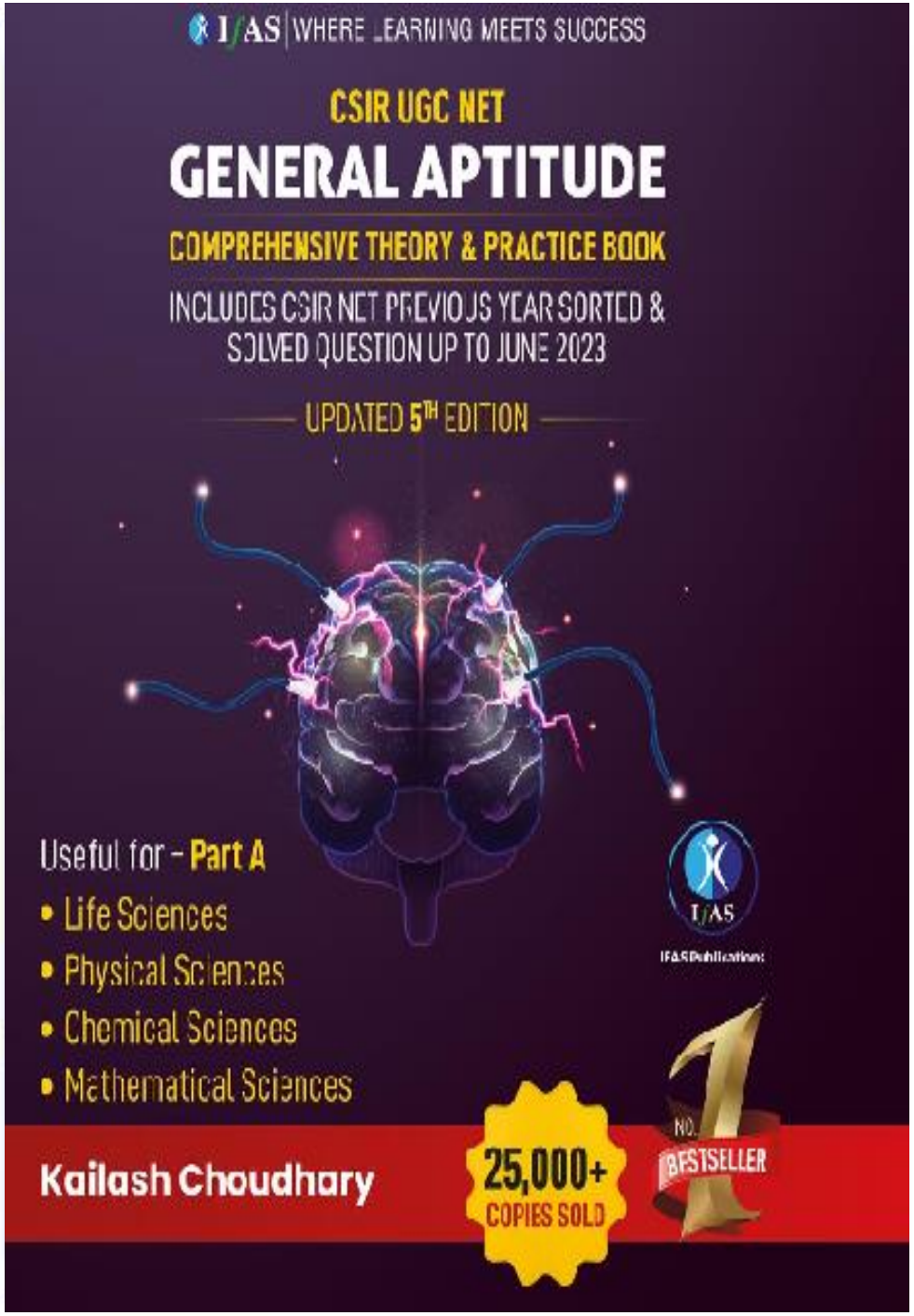
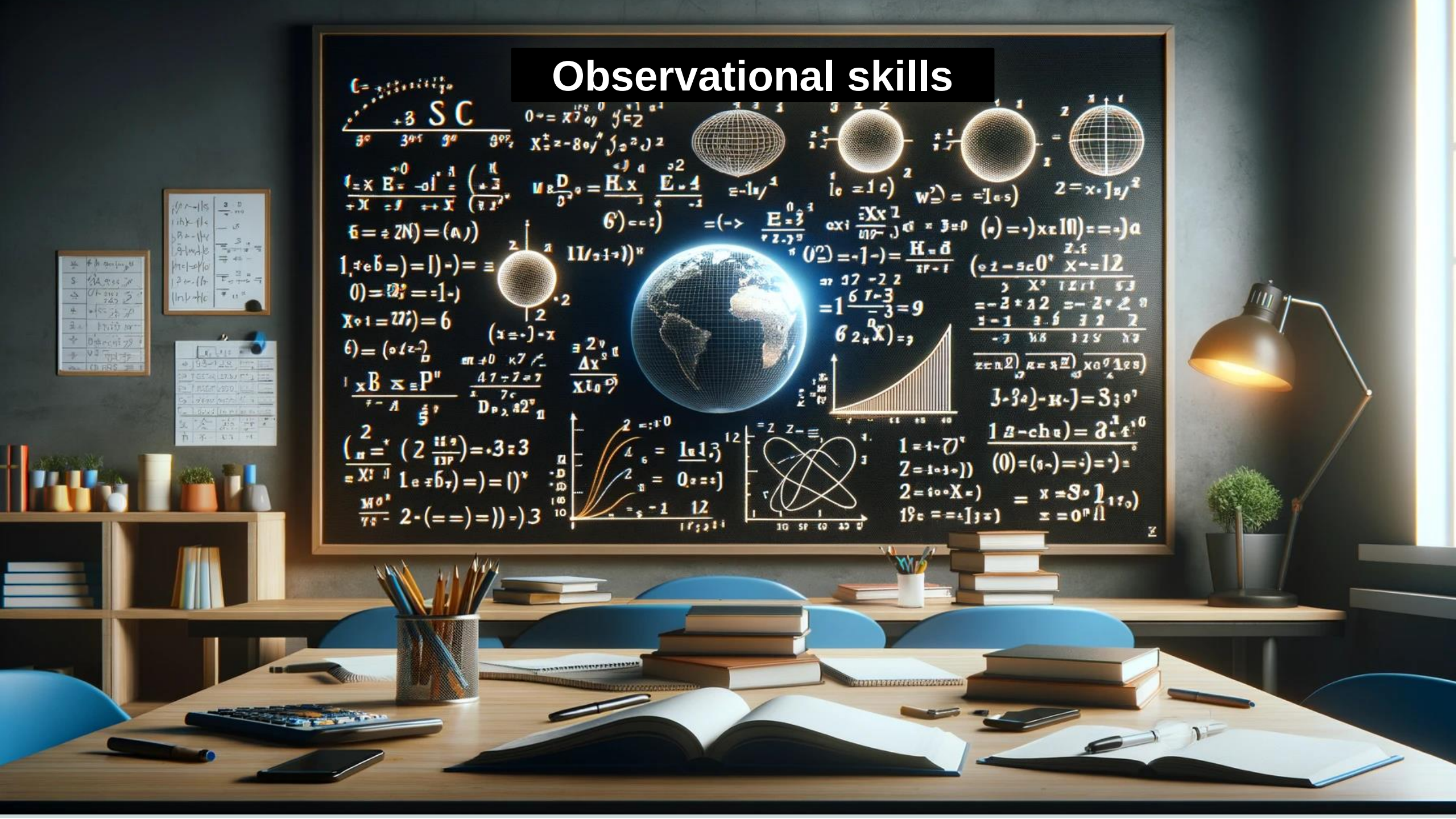


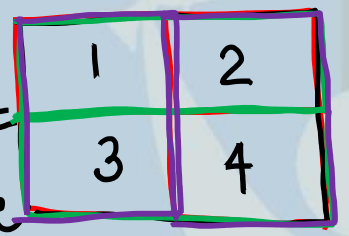
Topic Covered in Today's Session

1. Counting the figures
2. Coding decoding
3. Types of coding decoding
4. Practice questions

Observational skills



Counting the figures

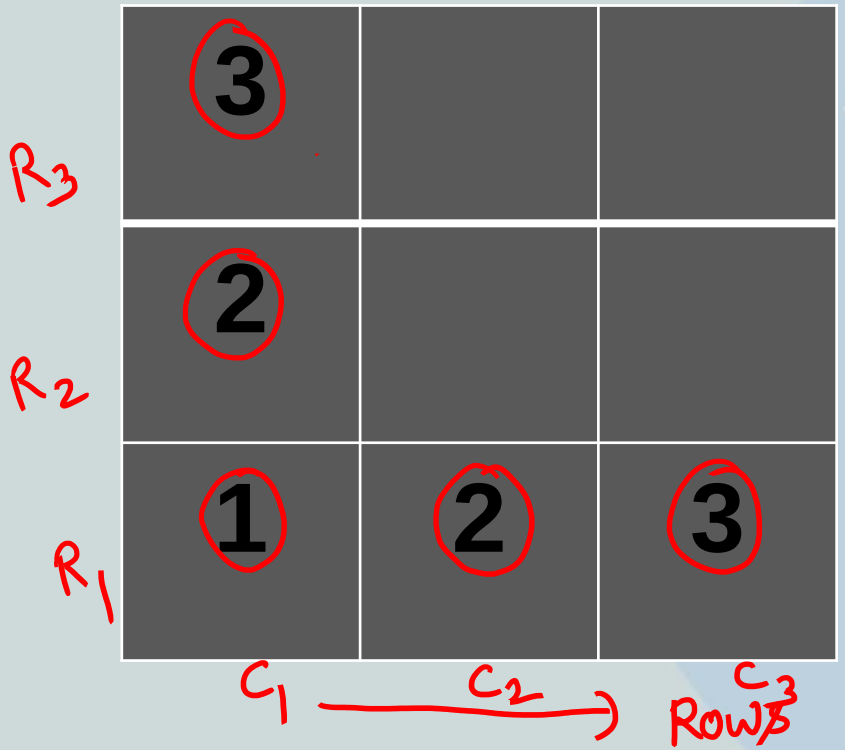
No. of Squares = 

= (5) ✓

No. of Rectangle = 5 + 4 = 9

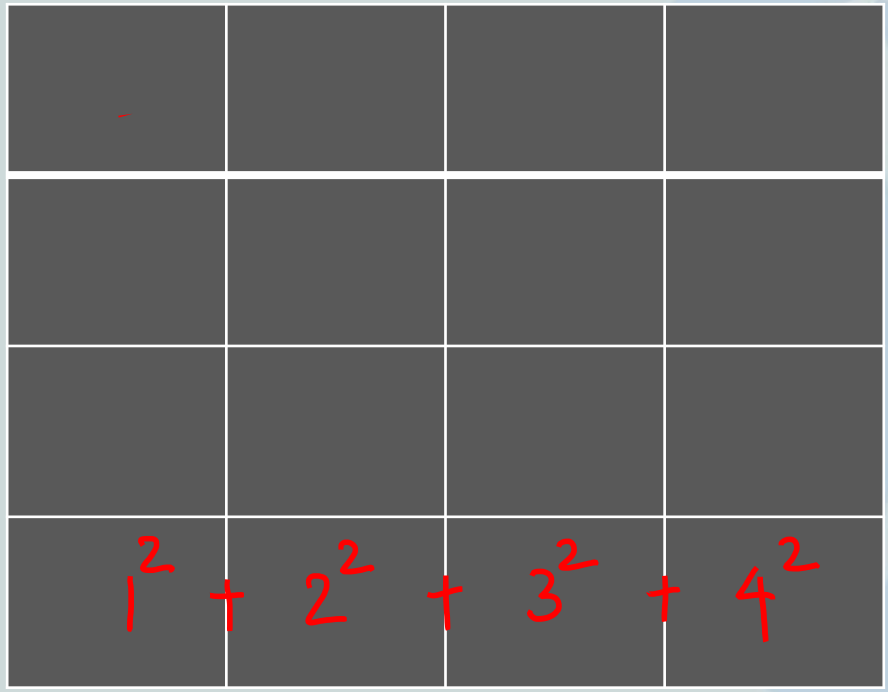
COUNTING THE NUMBER OF SQUARE (for n × n)

Rows = Column



$1^2 + 2^2 + 3^2 =$ $1 + 4 + 9 = 14$

COUNTING THE NUMBER OF SQUARE (for n × n)



$= 1 + 4 + 9 + 16 = 30$

COUNTING THE NUMBER OF SQUARE (for n × m)

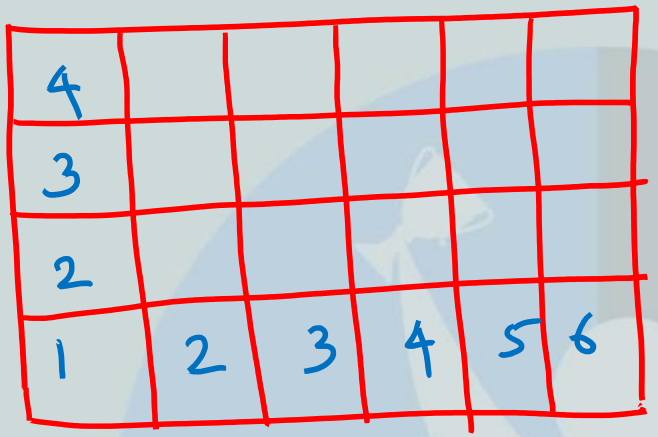
Rows ≠ Column

3			
2			
1	2	3	4

C = 4
R = 3

©		®	
4	×	3	= 12
3	×	2	= 6
2	×	1	= 2
1	×	0	
			20

(4×3) + (3×2) + (2×1) + (1×0) = 20

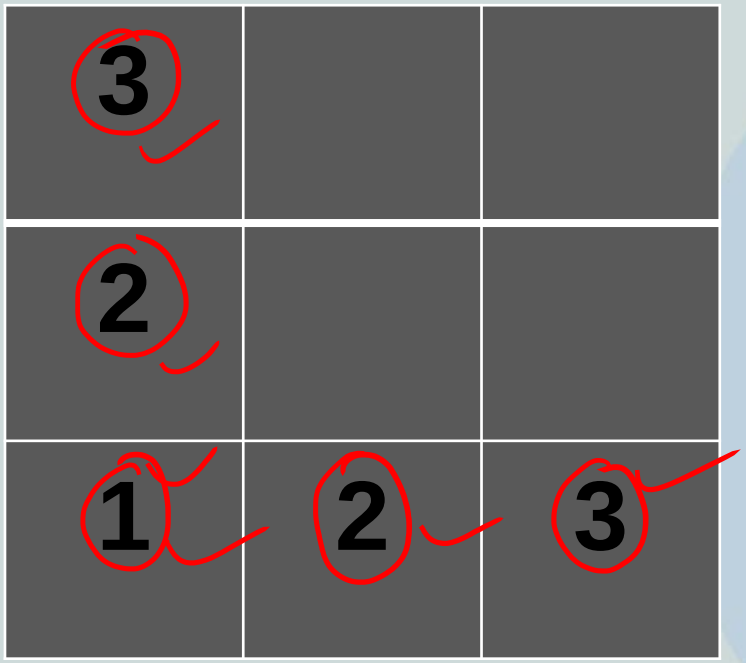


Rows Column

4	×	6	= 24
3	×	5	= 15
2	×	4	= 8
1	×	3	= + 3
0	×	2	50

COUNTING THE NUMBER OF RECTANGLE (for n × n / n × m)

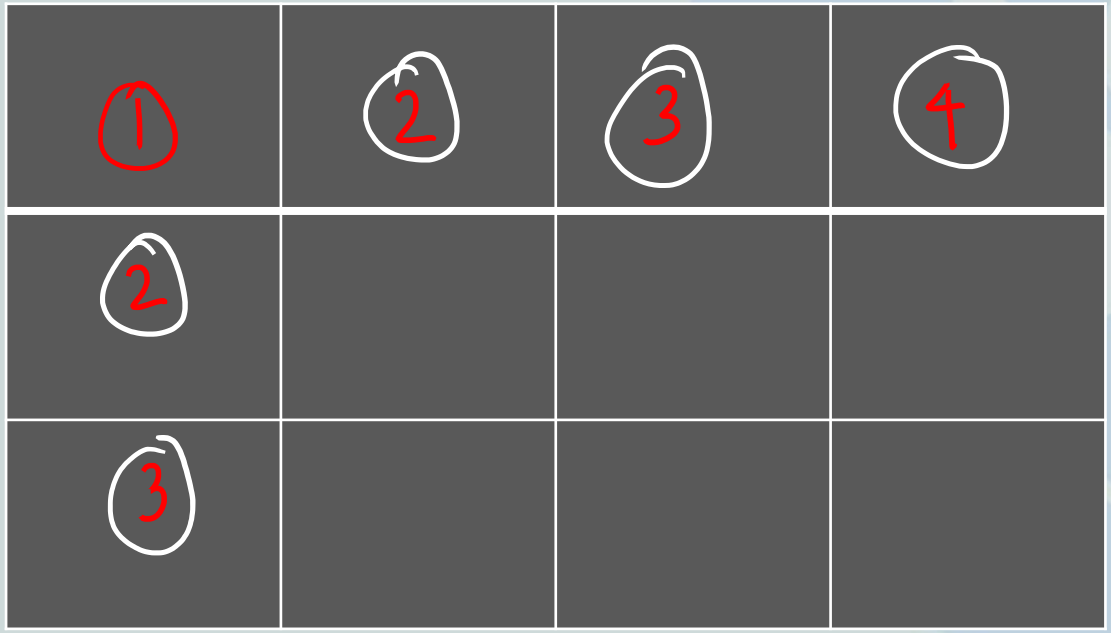
(R = C) (R ≠ C)



Row Column

$$(1+2+3) \times (1+2+3) = 6 \times 6 = 36$$

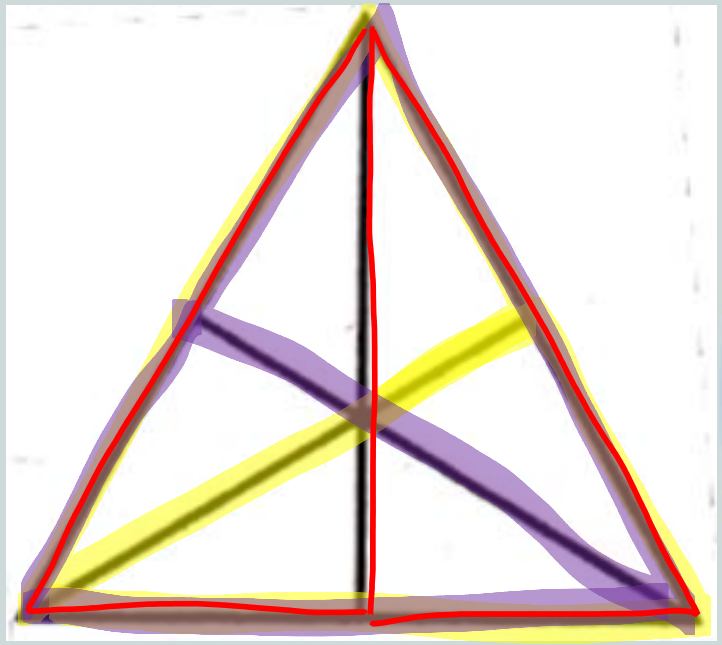
COUNTING THE NUMBER OF RECTANGLE (for n × n / n × m)



$(1+2+3) \times (1+2+3+4)$

$6 \times 10 = 60$

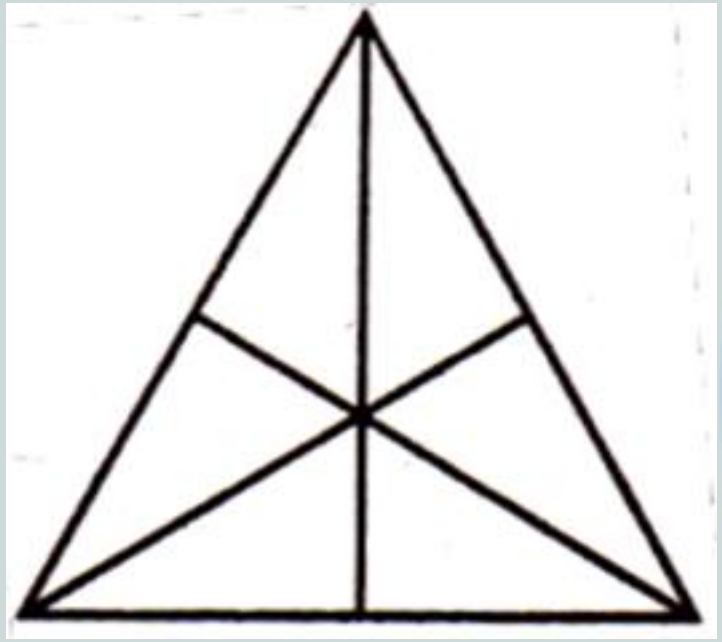
Q1. Find the number of triangles in the given figure.



(a) 16
(b) 13
(c) 9
(d) 7

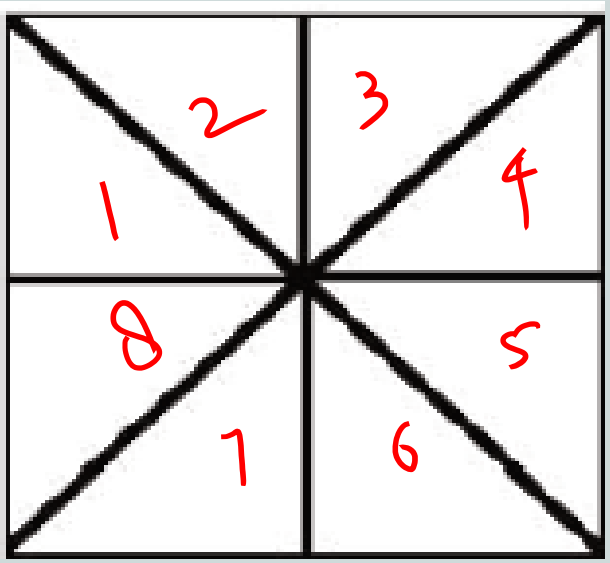
6
3
6
1
16

Find the number of triangles in the given figure.



(a) 16
(b) 13
(c) 9
(d) 7

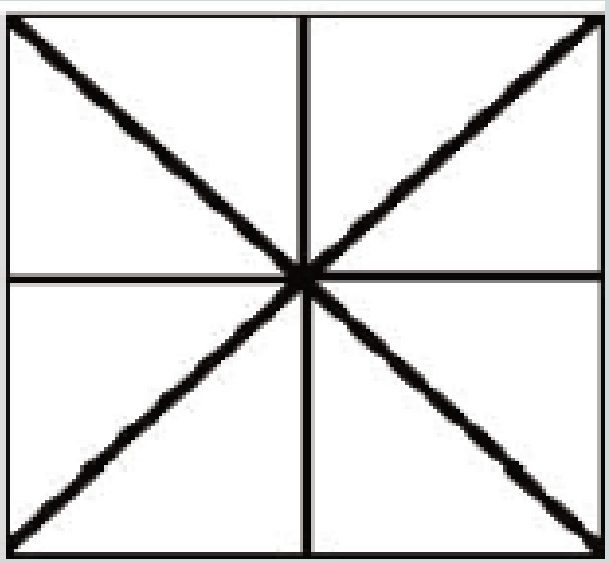
Q2. How many triangles are there in the following figure?



$8 \times 2 = 16$

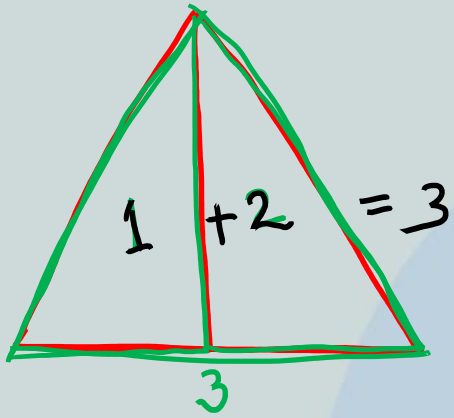
(a) 18
(b) 12
(c) 14
(d) 16

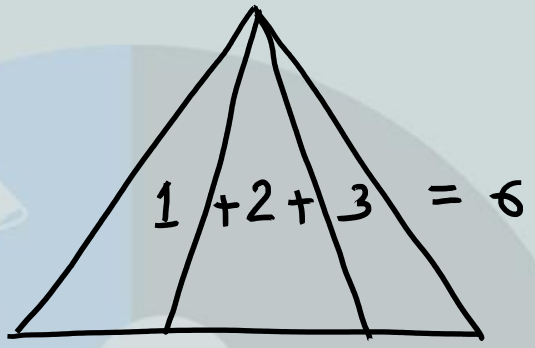
How many triangles are there in the following figure?

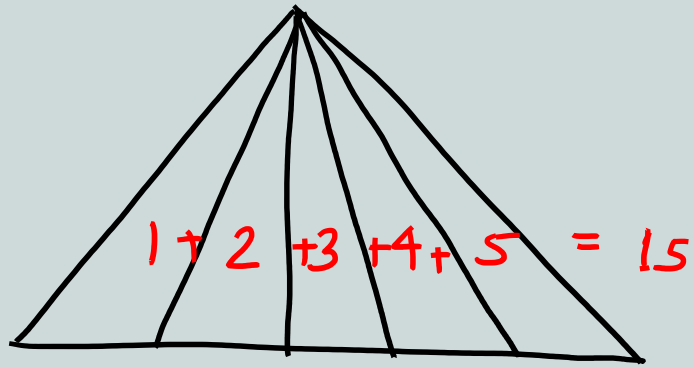


(a)18
(b)12
(c)14
(d) 16

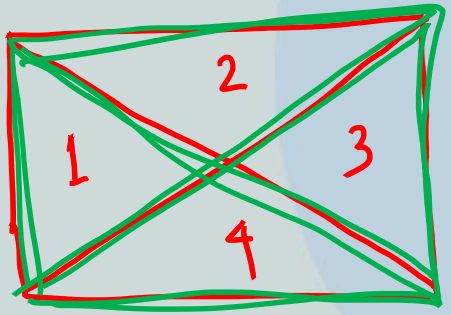
Type ①



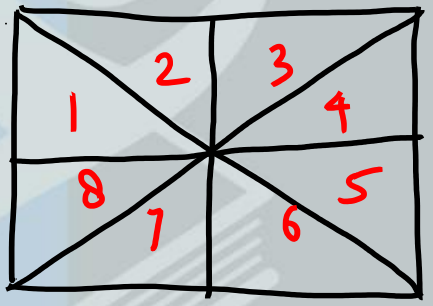




Type ②

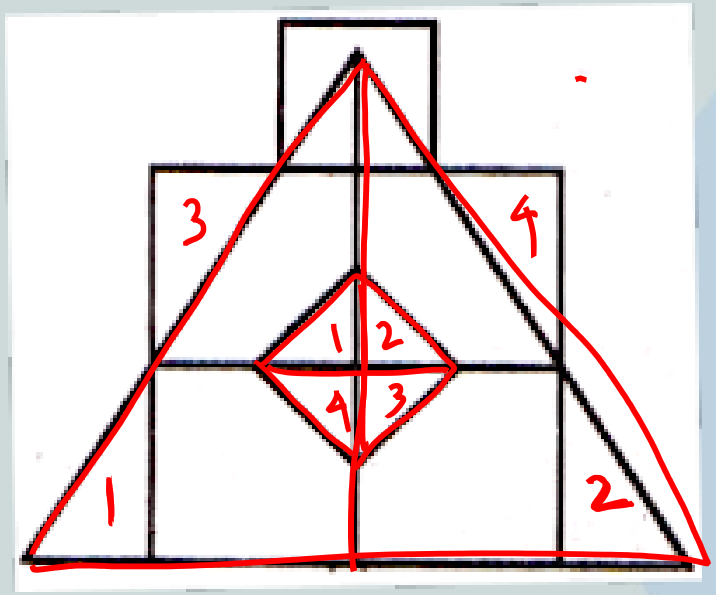


4 x 2 = 8
↑
Double

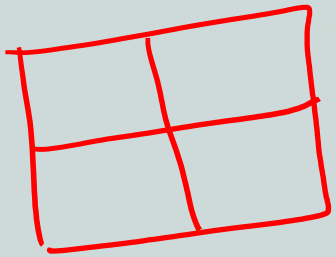


8 x 2 = 16

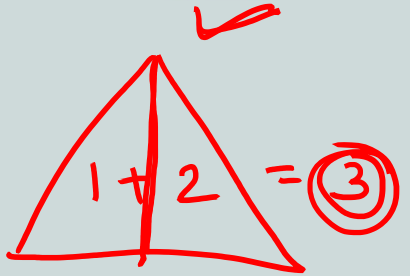
Q3. Count the number of triangles and squares in the given figure.



(A) 21 triangles, 7 squares
(B) 18 triangles,8 squares
(C) 20 triangles,8 squares
(D) 22 triangles,7 squares

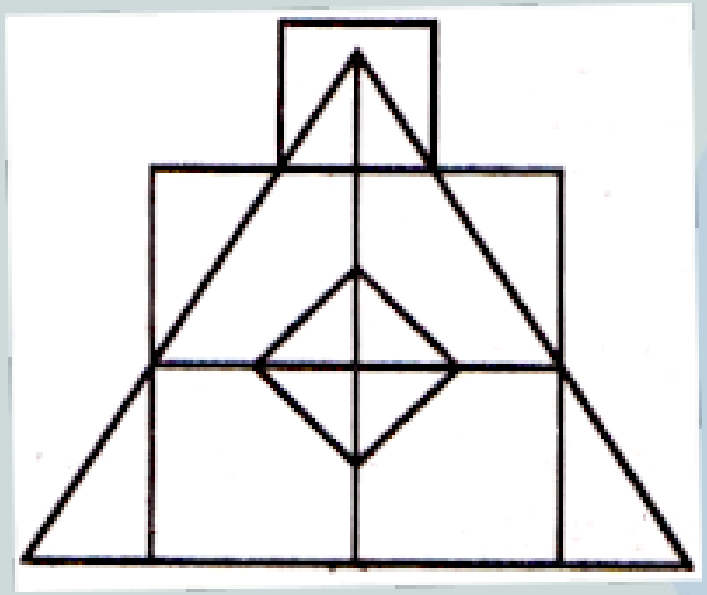


4 x 2 = 8



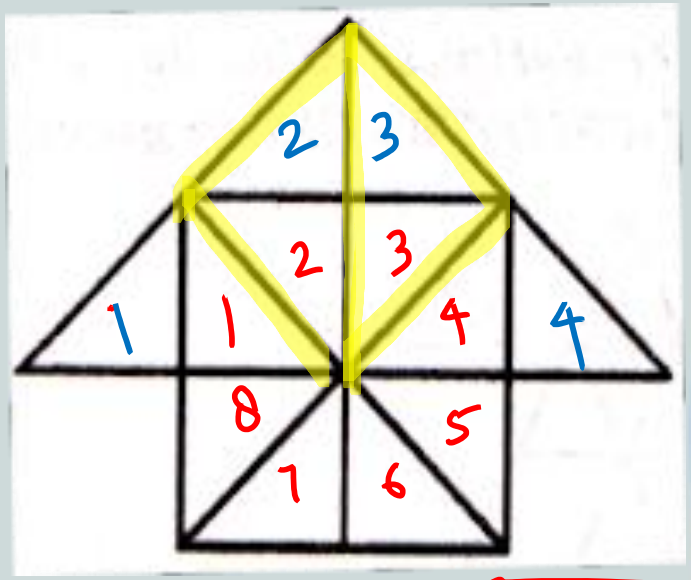
= 9
8
4
21

Count the number of triangles and squares in the given figure.



(a) 21 triangles, 7 squares
(b) 18 triangles,8 squares
(c) 20 triangles,8 squares
(d) 22 triangles,7 squares

Q4. Count the number of triangles and squares in the given figure.

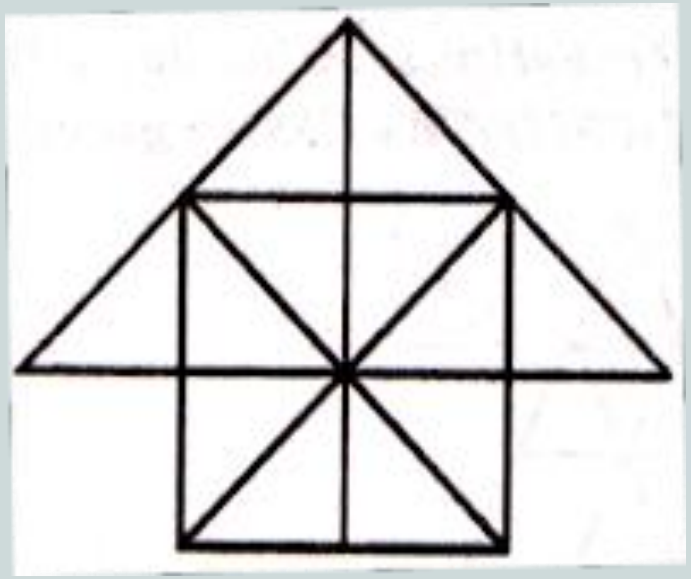


(a) 26 triangles,5 squares
(b) 28 triangles,5 squares
(c) 26 triangles,6 squares
(d) 28 triangles, 6 square

8 × 2 = 16
4
3
2
2
2
28

8 × 2 = 16
4
1
2
2
1 2
= 28

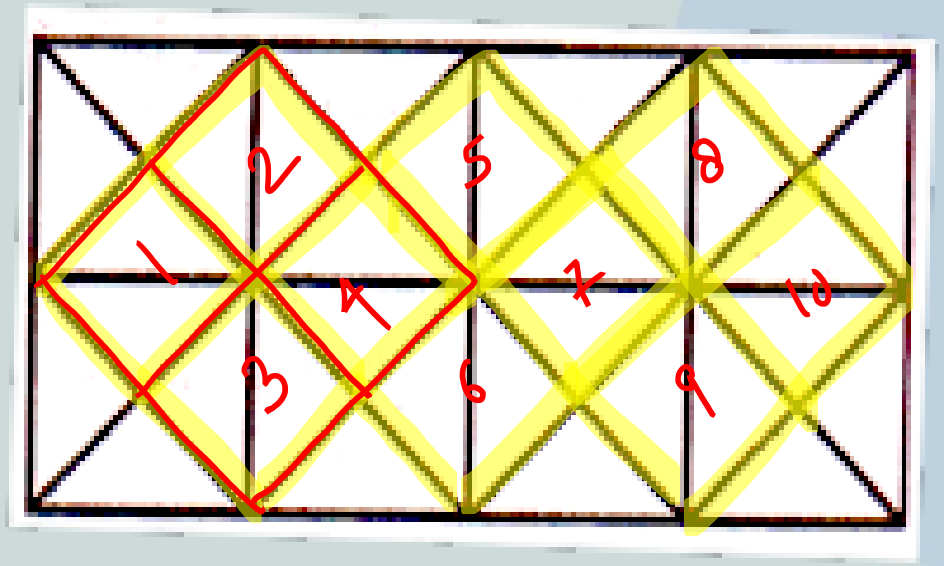
Count the number of triangles and squares in the given figure.

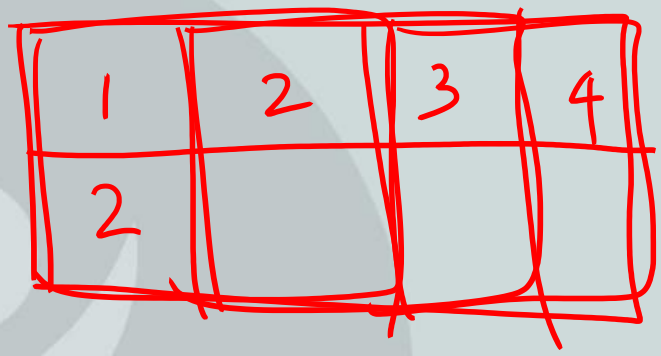


(a) 26 triangles,5 squares
(b) 28 triangles,5 squares
(c) 26 triangles,6 squares
(d) 28 triangles, 6 square

Q5. Count the number of squares in the given figures.

(A)11
(B)21
(C) 24
(D)26





11
10
3
24

2 × 4 = 8
1 × 3 = 3
0 × 2 = 0
11

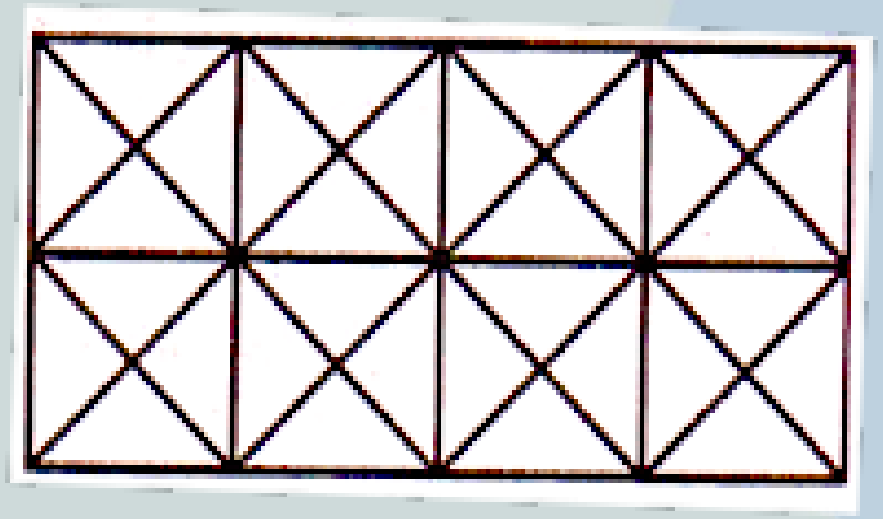
Count the number of squares in the given figures.

(A)11

(B)21

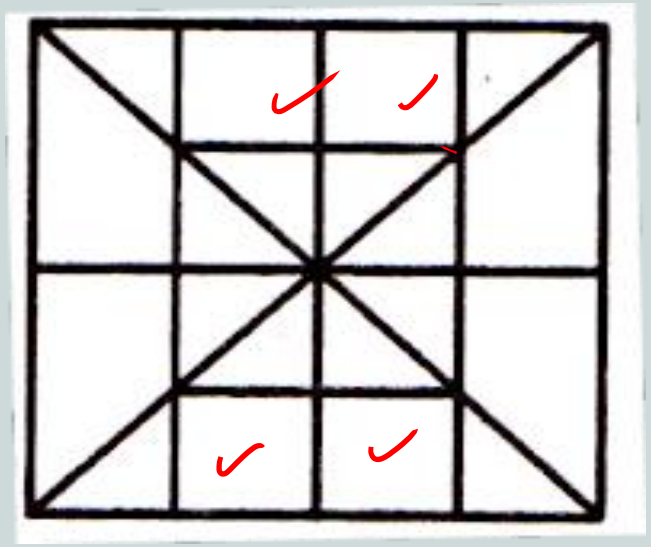
(C) 24

(D)26



Q6. Count the number of squares in the given figures.

(A)15
(B) 16
(C)19
(D)20



5
5
4
2

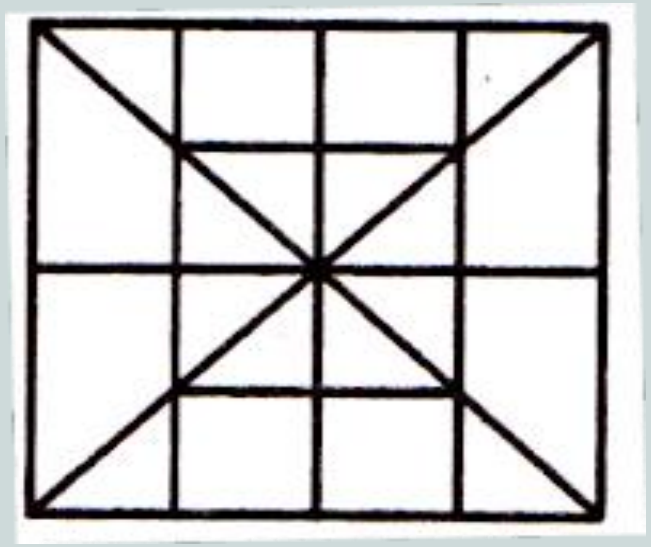
Count the number of squares in the given figures.

(A)15

(B) 16

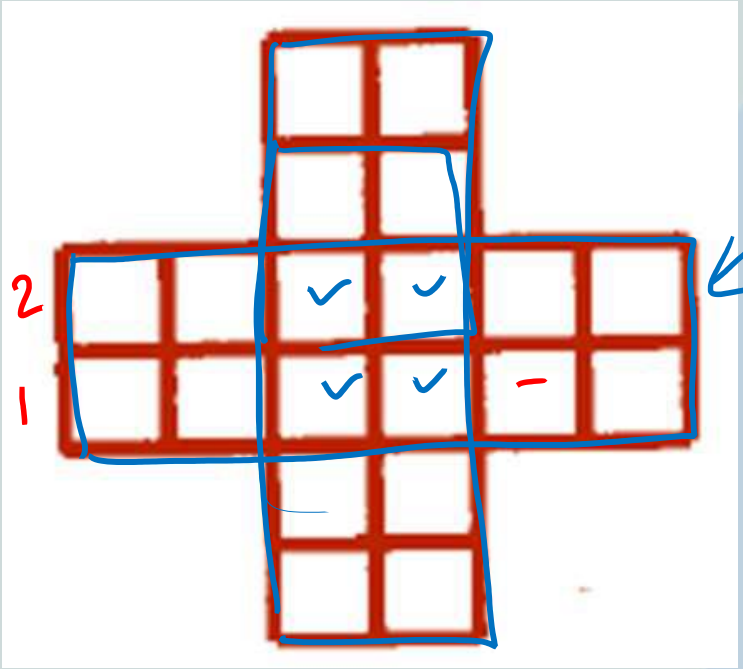
(C)19

(D)20



PYQ

Q7. The number of squares in the figure is:



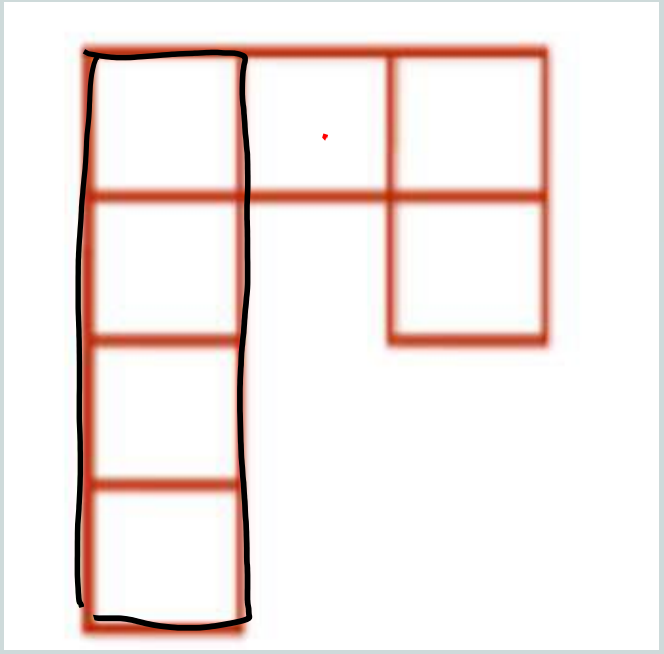
6 × 2 = 12
5 × 1 = 5
4 0
17
10
2
29

(1) 30 (2) 29 (3) 25 (4)20

Q8. How many non-square rectangles are there in the following figure, consisting of 7 squares ?

P4Q

(1) 8 (2) 9 (3) 10 (4) 11



No of Square

② → 6

③ → 3

④ → 1

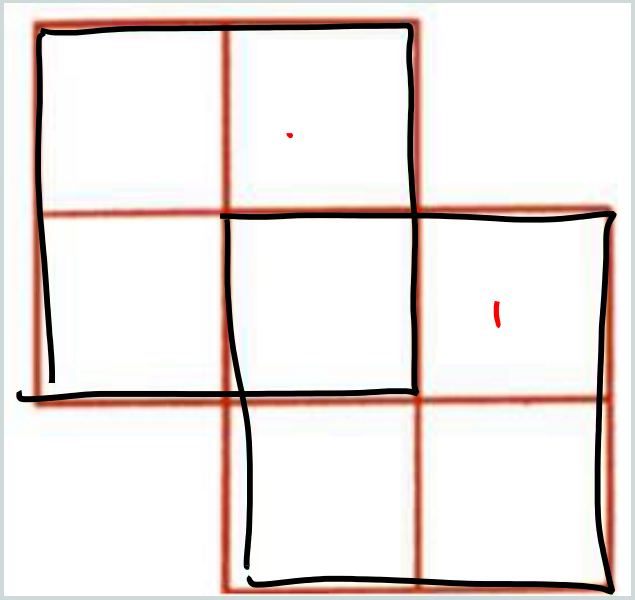
10

Rectangle

Q9. How many quadrilaterals does the following figure have?

P40

(1) 17 (2) 18 (3) 19 (4) 20



1 = 7

2 = 4 + 4 = 8

3 = 2

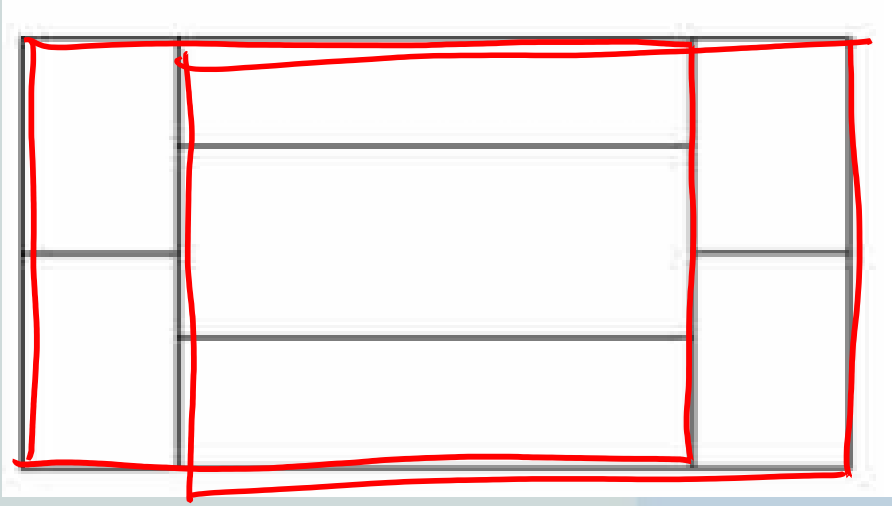
4 = 2

19

PYQ

June 2022

Q10. The number of rectangles in the given figure is



1 → 7

2 → 4

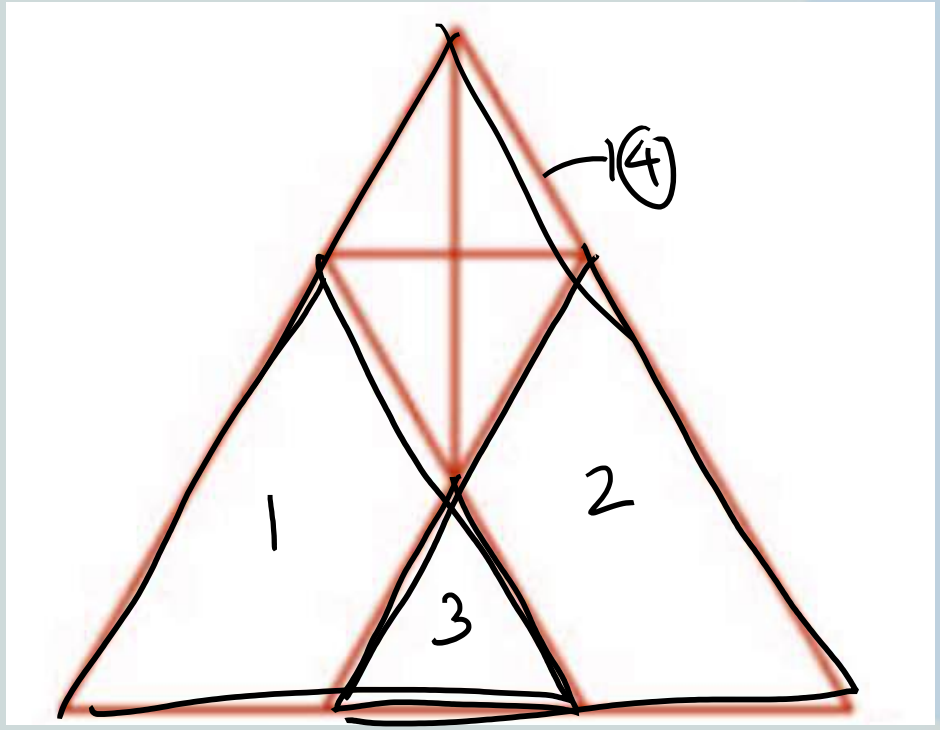
3 → 1

5 → 2

15

1. 12
2. 13
3. 15
4. 16

Q11. The number of triangles in the figure is?
(1) 9 (2) 10 (3) 11 (4) 12

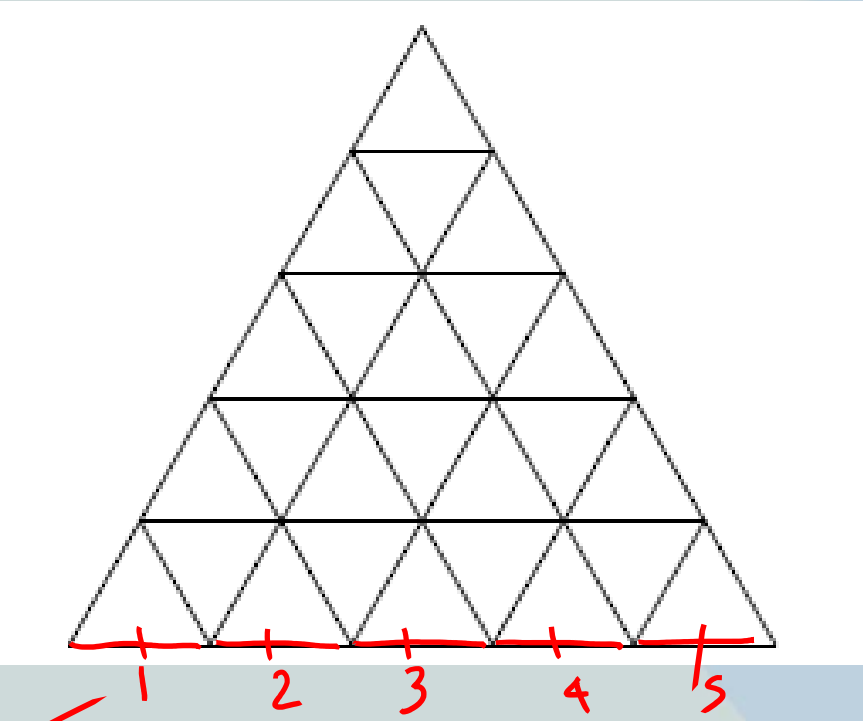


$4 \times 2 = 8$

12

Q12. How many triangles are there in the figure

(1) 35 (2) 38 (3) 39 (4) 48



$n = 5$ (odd)

No. of $\Delta = \left[\frac{n(n+2)(2n+1) - 1}{8}\right]$

$= \frac{5 \times 7 \times 11 - 1}{8} = \frac{385 - 1}{8} = \frac{384}{8}$

$= 48$ triangles

No. of triangles = n(n+2)(2n+1) / 8 (EVEN)

No. of triangles = (n(n+2)(2n+1) -1)/ 8 (ODD)

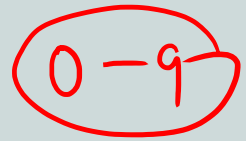
What is Coding-Decoding ?

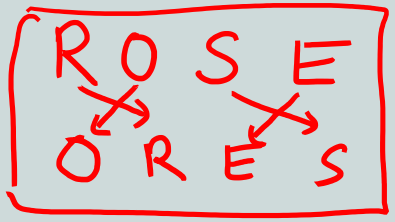
Coding: Coding is a process used to encrypt a word, letter, number, or mixture of both in a particular code or pattern based some set of rules.

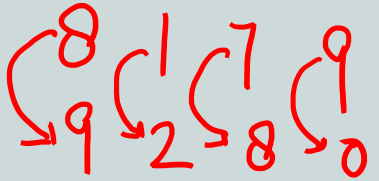
Decoding: Decoding is the process that is used to decrypt the patterns into original forms from the given form.

Types Of Coding-Decoding Reasoning

- ✓Letters to Letters Coding-Decoding
- ✓Numbers to Numbers Coding-Decoding
- ✓Letters to Numbers Coding-Decoding
- ✓Conditional Coding-Decoding
- ✓Chinese Coding-Decoding







Place value

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
26	25	24	23	22	21	20	19	18	17	16	15	14
Z	Y	X	W	V	U	T	S	R	Q	P	O	N

A P P L E

Z K K O V

A P P L E

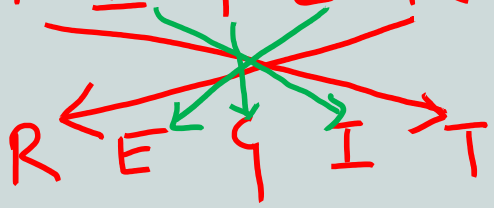
1 7 7 3 5

1 1+6 1+6 1+2 5

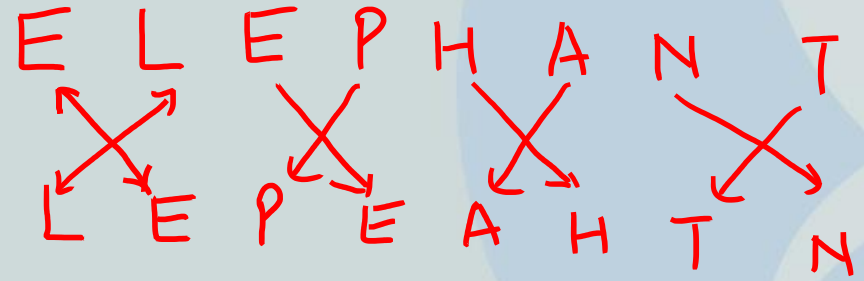
Pattern

Diagonal Pattern

① T I G E R



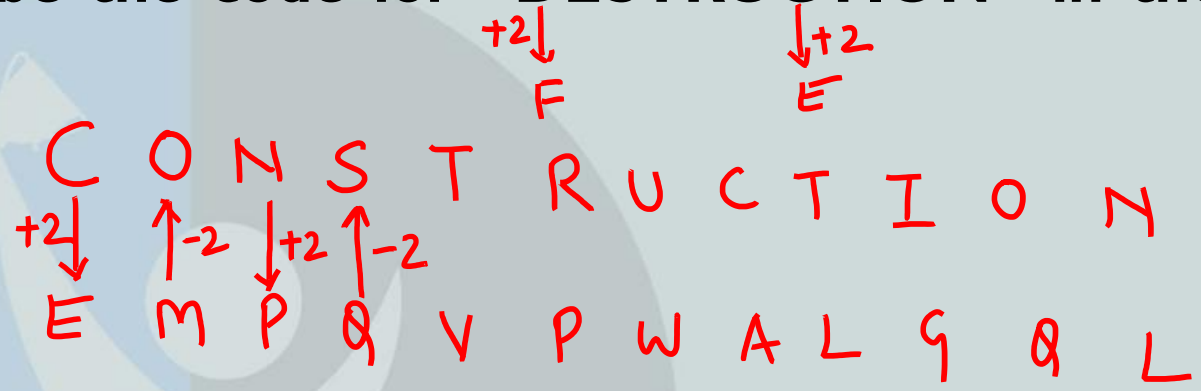
②



③

Q1. In a certain code language "CONSTRUCTION" is written as "EMPQVPWAVGQL" . What will be the code for "DESTRUCTION" in the same language?

1) FCURTSERKMP
2) EFTVSVDVJPO
3) FCURTSFSLOQ
4) None of the above



Q2. In a certain code language, "YEARLY" is written as "BVZIOB". What will be the code for "ANNUAL" in the same language?

1) ZFMOMM
2) ZNNFZA
3) ZMMFZO
4) XCADGF

In a certain code language, "YEARLY" is written as "BVZIOB". What will be the code for "ANNUAL" in the same language?

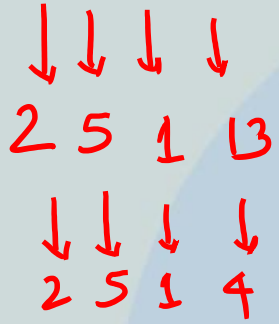
ZMMFZO

1) ZFMOMM
2) ZNNFZA
3) ZMMFZO
4) XCADGF

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
26	25	24	23	22	21	20	19	18	17	16	15	14
Z	Y	X	W	V	U	T	S	R	Q	P	O	N

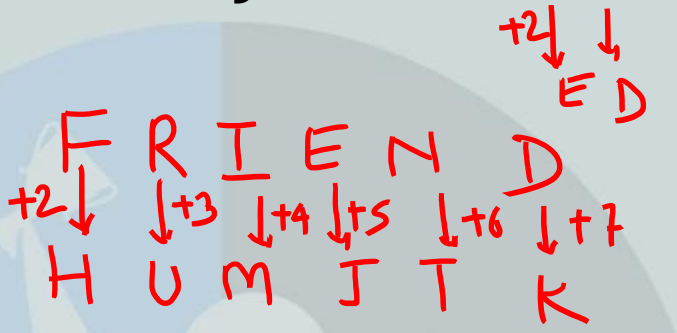
Q3. In a certain code language "EASY" is written as "5117". In the same code language, how will "BEAM" be written as?

1) 4512
2) 4567
3) 2513
4) 2514



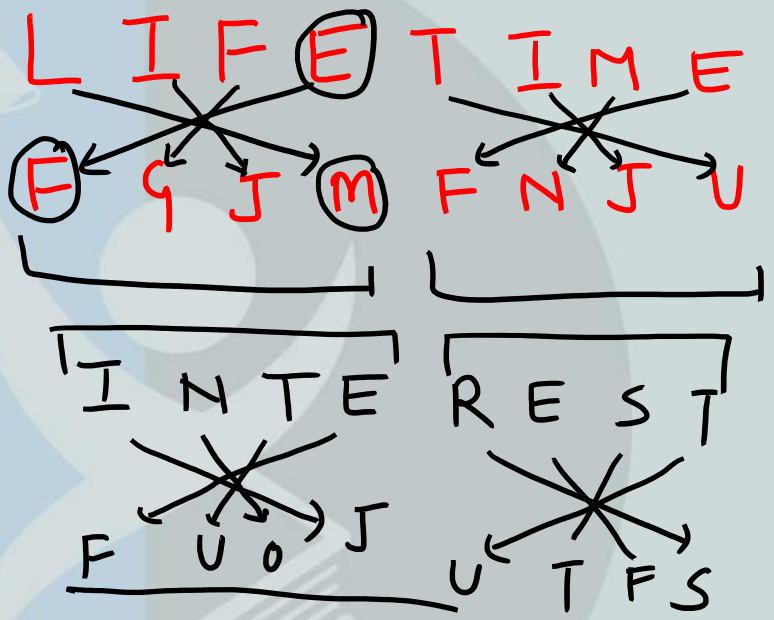
Q4. In the code FRIEND is written HUMJTK then CANDLE will be written:

1) EDRIRL
2) DCQHQK
3) ESJFME
4) None of the above



Q5. In a certain code language, 'LIFETIME' is written as 'FGJMFNJU' and 'INTEGRAL' is written as 'FUOJMBSH'. How will 'INTEREST' be written in that language?

1) FUOKUTGS
2) FUOJUTFS
3) FUOJVUFS
4) None of the above



Q6. "SPECIAL" is written as "65" in a certain code language what will "CONNECT" be coded as?

1) 70
2) 64
3) 78
4) 74

"SPECIAL" is written as "65" in a certain code language what will "CONNECT" be coded as?

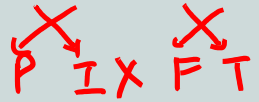
3 15 19 14 5 3 20

1) 70
2) 64
3) 78
4) 74

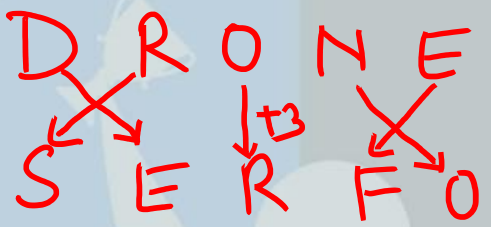
1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
26	25	24	23	22	21	20	19	18	17	16	15	14
Z	Y	X	W	V	U	T	S	R	Q	P	O	N

19 + 16 + 5 + 3 + 9 + 1 + 12 = 65

Q7. In a certain code language, 'DRONE' is written as 'SERFO'. How will 'HOUSE' be written as in that language?



1) POWGS
2) PIXFT
3) QJXGB
4) PIVFT



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3) QJXGB
4) PIVFT

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
26	25	24	23	22	21	20	19	18	17	16	15	14
Z	Y	X	W	V	U	T	S	R	Q	P	O	N

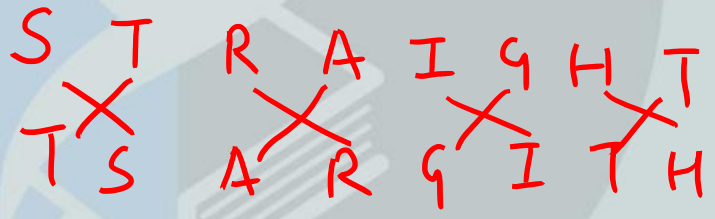
Q8. In a certain code language, STRAIGHT is written as TSARGITH. How will THURSDAY be written as in that language?

1) AYSDURTH
2) UHTDRSYA
3) HTRUDSYA
4) HTRUDSAY

In a certain code language, STRAIGHT is written as TSARGITH. How will THURSDAY be written as in that language?

1) AYSDURTH
2) UHTDRSYA
3) HTRUDSYA Ans
4) HTRUDSAY

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
26	25	24	23	22	21	20	19	18	17	16	15	14
Z	Y	X	W	V	U	T	S	R	Q	P	O	N



Q9. If N = 28 and ORE = 76, then how will you code PALE ?

14×2 → 15+18+5 → 38

16+1+12+5 = 34×2 = 68

1) 68
2) 72
3) 76
4) 19

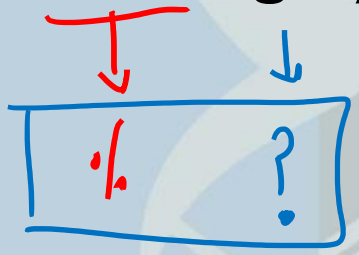
1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
26	25	24	23	22	21	20	19	18	17	16	15	14
Z	Y	X	W	V	U	T	S	R	Q	P	O	N

Q10. Study the data given below and answer the following questions:

'Royal Monarch Regal' is written as @ # *,
'Regal legacy Gold' is written as * % ?,
'Hope Gold Life' is written as % & $,
'Regal Monarch Morals' is written as # * ∀

What will be the code for "Gold Legacy"?

1) # &
2) % #
3) ? %
4) * ∀
5) $



Q11. Study the following information carefully and answer the questions given below:
In a certain code language

'rainfall today target' is written as 'mn vo na',
'strong rises higher' is written as 'sa ra ta',
'target rises inquiry' is written as 'la vo sa',
'victory plant rainfall' is written as 'mn ha ja'

What is the code for 'rainfall'?
(a) ja
(b) ha
(c) mn
(d) na

Q12. Study the following information carefully to answer the given questions.
In a certain code language.

"Data image burn task" is coded as "hj mk uy ed"
"Succeed security Data" is coded as "io mk sd"
"burn security succeed" is coded as "io sd ed"
"Security task green clean" is coded as "sd we uy tf"

Which of the following code may be for 'green image data'?

(a) ed sd tf
(b) io sd uy
(c) hj mk we
(d) mk we tf

Q13. Study the following information carefully and answer the questions given below:
In a certain code language:

"Rado Diesel Fossil Fastrack" is coded as "ac ie fo do"
"Casio Sonata Maxima Diesel" is coded as "ie ca ta ma"
"Fastrack Diesel Casio Titan" is coded as "ti ie ca ac"

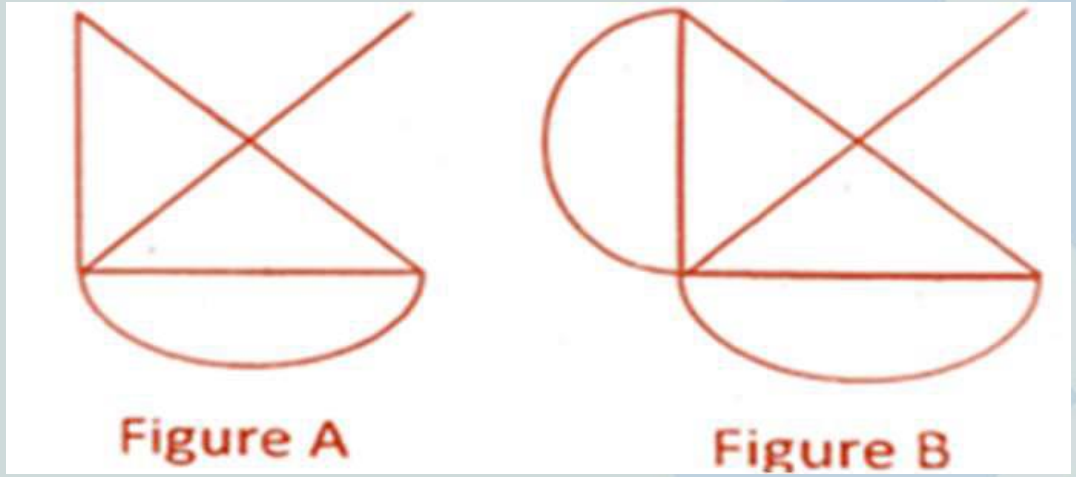
HW

What is the code of "Casio" as per the given code language?

(a) ac
(b) ca
(c) ie
(d) fo

(CSIR NET/JRF JUNE 2019)

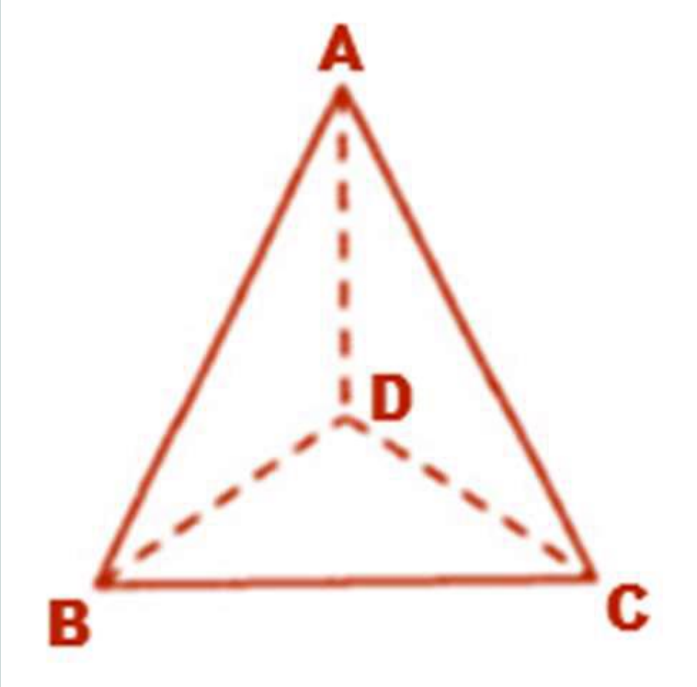
Q1. Which of the following figures can be drawn without lifting the pen from the paper or retracing?



(1) figure A but not figure B
(2) figure B but not figure A
(3) both figures A and B
(4) neither figure A nor figure B

Q2. A wire of length 6 m is used to make a tetrahedron of each edge 1 m, using only one stand of wire for each edge. The minimum number of times the wire has to be cut is (PYQ)

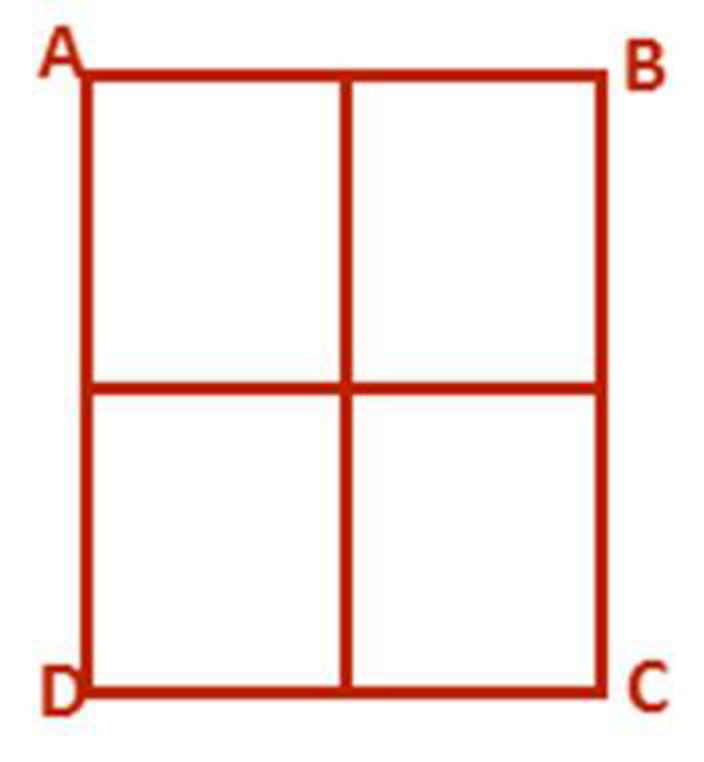
(1) 2 (2) 3 (3) 1 (4) 0



Q3. An ant goes from A to C in the figure crawling only on the lines and taking the least length of path. The number of ways in which it can do so is ?

(JUNE 2013)

(1) 2 (2) 4 (3) 5 (4) 6



Q4. Choose the correct option that will make the following statement correct:

THE NUMBER OF TIMES THE LETTER "I" OCCURS IN THIS SENTENCE IS _____.

1. **FOUR**
2. **FIVE**
3. **SIX**
4. **SEVEN**

Q5. Choose the option that will make the following statement correct:

IF WE COUNT THE NUMBER OF APPEARANCES OF THE LETTER "N" IN THISSENTENCE, THE RESULT WILL BE _____.

1. SIX
2. SEVEN
3. NINE
4. TEN

Q6. THE ABILITY TO REASON ACCURATELY IS VERY IMPORTANT, AS IS THE ABILITY TO COUNT. AS AN EXERCISE IN BOTH, LET US COUNT HOW MANY TIMES THE LETTER "E" OCCURS IN THIS PARAGRAPH. THE CORRECT COUNT IS _____.

Which option when put in the blank in the above paragraph will make the final sentence accurate?

1. SIXTEEN
2. SEVENTEEN
3. EIGHTEEN
4. NINETEEN

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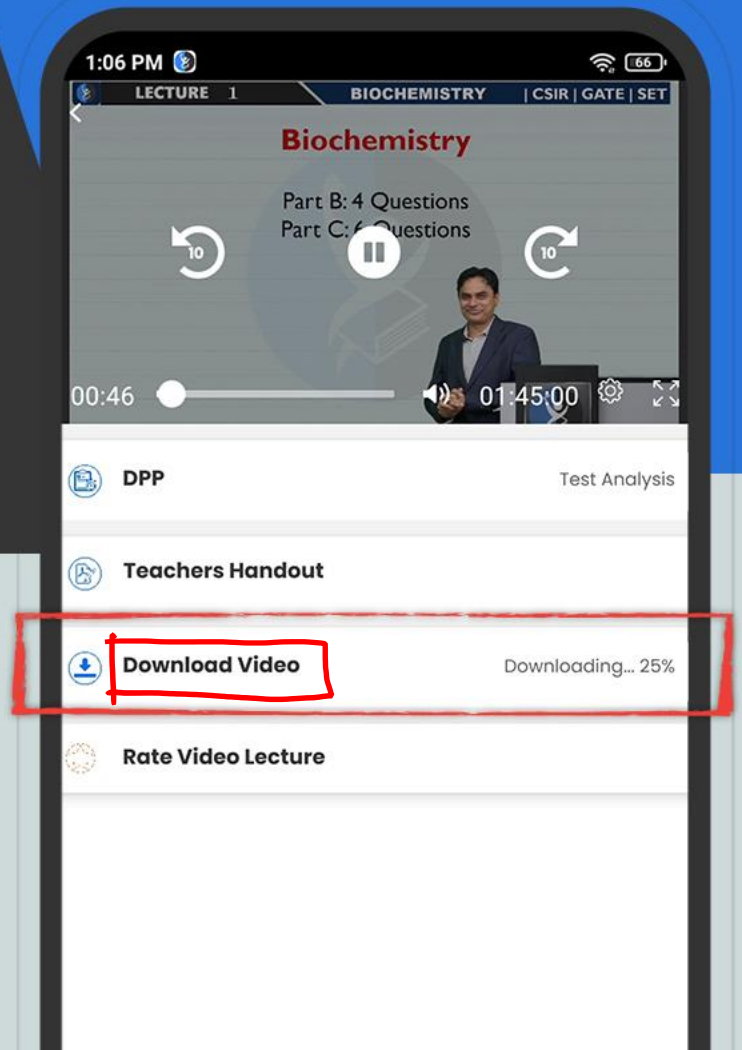

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